Fatty acid compositions of fish oil extracted from different parts of Indian mackerel (Rastrelliger kanagurta) using various techniques of supercritical CO2 extraction.

ABSTRACT

Fatty acid compositions of fish oil extracted from different parts of Indian mackerel (Rastrelliger kanagurta) using various techniques of supercritical carbon dioxide (SC-CO2) at optimised conditions (35 MPa, 60 °C, 2 ml/min) were analysed and compared to the results of Soxhlet extraction. The amount of polyunsaturated fatty acids (PUFA) recovered (as a percentage of total extracted fatty acids) were within the ranges of 73.24–74.68% in the skin, 68.36–69.37% in the flesh, 56.20–57.3% in the viscera and 61.21–62.09% in the heads. The greatest amount of the ω-3 fatty acids, especially eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), were found in fish skin followed by flesh, heads and viscera. The greatest amounts of EPA (9–12%) and DHA (10–14%) were obtained using the soaking and pressure swing techniques. The pressure swing and soaking techniques are the most effective techniques for extracting the ω-3 family of fatty acids from fish samples.

Keyword: PUFA; ω-3 Fatty acids; Indian mackerel; Supercritical carbon dioxide extraction.